only open-air lake site in Lower Paleolithic East Asia. Based on chronology and archaeology, he concludes that the data do not support any model of long-term biological or cultural isolation of *Homo erectus*. Miracle examines archaeological evidence for the spread of modernity in Europe, testing the hypothesis that the transition from archaic to modern Europeans was due to an influx of modern humans with a different technology. He concludes that this hypothesis is not supported, and that the Aurignacian is not a single culture uniquely associated with modern humans. Bellwood examines the ways in which archaeological data can contribute to an understanding of population history by using examples from Australia and Oceania. A major emphasis of this paper is examining evidence for and against rapid dispersal models. The final paper in this section, by Aoki, outlines a complex mathematical model for population movements into Europe, finding that replacement is likely under certain scenarios, but not under others.

The final section of this book presents two papers on linguistic variation and evolution. Ruhlen describes recent work on a new linguistic family, Dene-Caucasian, which includes groups previously considered as isolates, such as the Basque. Ruhlen proposes that the reconstructed linguistic history of this language family fits a recent African origin model better than a multiregional model. Wang reviews various ways in which linguistic analysis can shed light on human evolution, concluding that a multiregional model is more likely.

It should be clear from my brief synopses that the participants varied greatly in their relative support of replacement versus continuity models, even within disciplines. There was no uniform support for one model versus another. Nonetheless, the book is interesting because of the variety of approaches to similar questions of origins. I feel it is increasingly important for geneticists to become more familiar with the fossil record, and for paleoanthropologists to become familiar with the genetic evidence. Further, both disciplines need to become more familiar with evidence from archaeology and linguistics. Conferences such as these are a necessary first step to overcome hyperspecialization and limited communication across fields. As such, the book will be useful to researchers who have not come across previously published works by the participants. The major value of this book is the need to continue to view the modern human origins debate as an *anthropological* question, requiring more attention to contributions across all disciplines and the need to communicate findings in broad and widely read anthropological journals and books. Hyperspecialization in research and publication is not as productive for further efforts to deal holistically with these questions. We would do well to continue the efforts started in this book.

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This slim book is full of thought-provoking papers that underscore the problems and promise of exploring the complex relationships between sex differences in human physiology, cultural practices, and health in modern and ancient societies. It is a significant contribution to the rapidly growing literature that views sex differences in health from a biocultural perspective. The loosely related set of papers that have been brought together in this volume make it clear how crucial it is to adopt an integrative approach in research on gender differences in health.

Maintaining the distinction between gender and sex is crucial to any investigation of the biological and cultural determinants of the health differences between men and women (Walker and Cook, 1998). This point is eloquently argued in an introductory essay by George Armelagos in which he discusses how analytically incapacitating it can be when we blur the distinction between "sex" (the anatomical or chromosomal categories of male and female) and "gender" (the socially constructed roles that are related to sex differences). A failure to make this distinction is especially debilitating to researchers in a field such as biological anthropology whose strength lies in the integration of biological and cultural information.

Several of the papers in this volume show how important understanding the biology of sex differences is for research on the health consequences of gender roles. For example, in a study of hominoid skeletal injuries, Robert Jurmain and Lynn Kilgore draw parallels between sex-related patterns of skeletal trauma in great apes and humans. They argue that the propensity of male apes and humans to sustain cranial injuries has a neurological and endocrinological basis that stems from our shared common ancestry.

In another chapter that incorporates data from nonhuman primates, Della Cook and Kevin Hunt persuasively argue that many bioarchaeological studies purporting to show gender inequality in human societies fail to adequately consider the metabolic effects of sex difference in human reproductive physiology. It is often assumed that men and women have essentially the same nutritional requirements and, based on this, skeletal evidence such as sex differences in trace element and stable isotope concentrations are interpreted as clear evidence of gender inequality in food access. Cook and Hunt argue that, owing to fundamental differences in reproductive physiology, the nutritional needs of women are likely to be very different than those of men. This point is bolstered by a fascinating survey of the literature on free-ranging nonhuman primates, which shows a consistent pattern of higher fruit consumption among males and higher leaf consumption among females. Cook and Hunt extend these finding to humans and argue that the demands that lactation places on fat, calcium, sodium, and chloride reserves of females are likely to result in dietary differences between the sexes that are unrelated to socially constructed gender inequalities.

In a chapter on patterns of illness in rural Latin America, Thomas Leatherman discusses the value that studies of modern populations can have for elucidating the health consequences of gender roles in earlier human populations. One of his conclusions is that gender inequalities that place the health of women at risk have important ramifications for the effectiveness of their entire household as a productive and reproductive unit.

Osteoporosis and iron deficiency anemia are two significant modern health problems that afflict women more frequently than men. Since these conditions have skeletal manifestations, hypotheses about their history and etiology can be evaluated through bioarchaeological research. For example, some researchers believe that women in earlier human societies did not suffer from the menopause-related osteoporosis of their modern counterparts because of differences in diet, exercise, and childbearing patterns. David Weaver describes some of the problems bioarchaeologists face when they attempt to test such theories using ancient skeletal collections in a chapter on age-related bone loss. One of Weaver's main conclusions is that, owing to postmortem changes in bone composition, whole bone radiography is of little value in paleopathological studies of osteoporosis. He believes that microradiography and histomorphometry are the only techniques that can provide much useful information.

In a provocative chapter on the history of anemia, Patricia Stuart-Macadam argues that the modern prevalence of this condition among women is a recent phenomenon. Based in part on the virtual absence of skeletal lesions associated with childhood anemia in pre-Neolithic skeletal collections, she concludes that, until recently, iron deficiency anemia was not a significant problem. Stuart-Macadam believes that equilibrium in iron physiology was established among hunter-gatherers and that this be-

gan to be disrupted with the rise of village life and the increased exposure to disease-causing microorganisms that a sedentary existence entails. In this context, the risk of iron deficiency would be greatly increased owing to direct losses associated with conditions such as hookworm infection and diarrheal disease. Under these conditions, the "iron withholding" response our bodies make to deprive pathogens of this essential nutrient would exacerbate the problem of pathogen-induced iron loss. Stuart-Macadam notes that there is little evidence for a sex difference in the frequency of skeletal lesions indicative of severe anemia (porotic hyperostosis and cribra orbitalia). This is not surprising, since there are good physiological reasons to believe that the development of these lesions is a childhood phenomenon rarely, if ever, seen in adults.

Donald Ortner discusses the important implications that sex differences in immune reactivity have for paleopathological research. Clinical data suggest that the immune responses of women tend to be greater and more effective than those of men. Ortner links this sex difference to long-standing selective pressures associated with the hazards of pregnancy, childbirth, and maternal mortality. He also argues that gender inequalities in food access that predispose women to malnutrition and increase their vulnerability to infectious disease may have been important in shaping sex differences in immune response. Ortner then develops a model that relates sex differences in immune response to predictions about the frequency of skeletal lesions in ancient populations. A complicating factor that this model does not adequately address is the depression of the immune system seen in pregnant women that reduces the chances of fetal rejection. This pregnancy-related immune response depression has major implications for the frequency of skeletal lesions in earlier populations in which women were pregnant during much of their adult lives.

Several of the studies in this book use data from archaeological skeletal collections to explore the health consequences of gender roles in earlier human populations. In a study of skeletons from rural and urban Medieval English cemeteries, Charlotte Roberts, Mary Lewis, and Philip Boocock looked for sex differences in skeletal lesions associated with respiratory disease (inflammatory lesions in the maxillary sinuses and on the ribs). They discovered a complicated pattern of skeletal lesions in which men and women in urban and rural populations showed few significant differences. This study highlights the complexity of the factors that predispose people to respiratory infections (pollution, climate, impoverished living conditions, differences in socio-economic status, population density, and so on).

Through the comparison of historical and bioarchaeological data, Anne Grauer, Elizabeth McNamara, and Diane Houdek explore sex differences in the health and economic conditions of the urban poor in nineteenth century America. Although historical documents show that more men than women were admitted to poorhouses, the skeletal collection they examined from mid-nineteenth century Chicago shows that more women than men died in these institutions. Paleopathological data also show that the men who died at the poorhouse were more likely to have experienced childhood health problems (as indicated by the dental hypoplasia and porotic hyperostosis) than the women who died there. The authors convincingly argue that these sex differences in morbidity and mortality reflect substantial differences in the economic opportunities available to poor men and women in nineteenth century America.

In another chapter that focuses on the interpretation of skeletal remains, Rebecca Storey examines the health consequences of gender and status differences in the late Classic period in the Mayan population of Copan, Honduras. She found little evidence for differences in the treatment of male and female children. This is consistent with modern ethnographic data that suggest little gender-specific child neglect in modern Mayan communities. Stature differences, however, show that status differences had a greater impact on the growth and development of males than females. Although, as Storey suggests, this is perhaps an indication that the power and resources associated

with status were more accessible to males than females, an alternative interpretation is that it reflects a greater sensitivity of male growth and development to disruption by unfavorable environmental conditions.

In a final paper, Clark Larsen presents bioarchaeological data on variation in the responses Native American men and women in the Georgia Bight area of North America made to major socioeconomic changes associated with the shift from foraging to agriculture and the arrival of Europeans. Larsen's skeletal studies provide clear evidence that the lives of men and women were effected in complex ways by economic and social changes associated with these major cultural transformations. For example, a decrease in differences in osteoarthritis prevalence between women and men in the late contact period suggests that the types and levels of work related activities become more similar and more strenuous for both sexes. Sex differences in dental caries prevalence, on the other hand, indicate that women consumed more carbohydrates than men did especially during the late contact period.

Sex and Gender in Paleopathological Perspective is full of interesting ideas about the complicated relationships that exist between sex, gender roles, and disease. The papers it contains clearly show how using a holistic biocultural approach that integrates ethnographic and clinical data on modern people can help to elucidate the causes of sex differences in the health of earlier human populations. These studies vividly illustrate how differences in gender roles related to food production and consumption can have significant consequences for the health of men and women. They also underscore the importance that understanding human biology has for the exploration of gender issues.

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